

The 21st Century Grid

“The Future Ain’t What it Used to Be”

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PJM Interconnection

Resilience Week
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**21% of U.S. GDP
produced in PJM**

KEY STATISTICS

Member companies	940+
Millions of people served	61
Peak load in megawatts	165,492
MW of generating capacity	183,604
Miles of transmission lines	62,556
2013 GWh of annual energy	797,461
Generation sources	1,376
Square miles of territory	243,417
States served	13 + DC

As of 6/1/2014

10. Air Conditioning/
Refrigeration

9. Telephone

8. Computers

7. Agricultural Mechanization

6. Radio and Television

5. Electronics

4. Water Supply and
Distribution

3. Airplane

2. Automobile
(PHEVs Someday)

1. The Grid/ Electrification

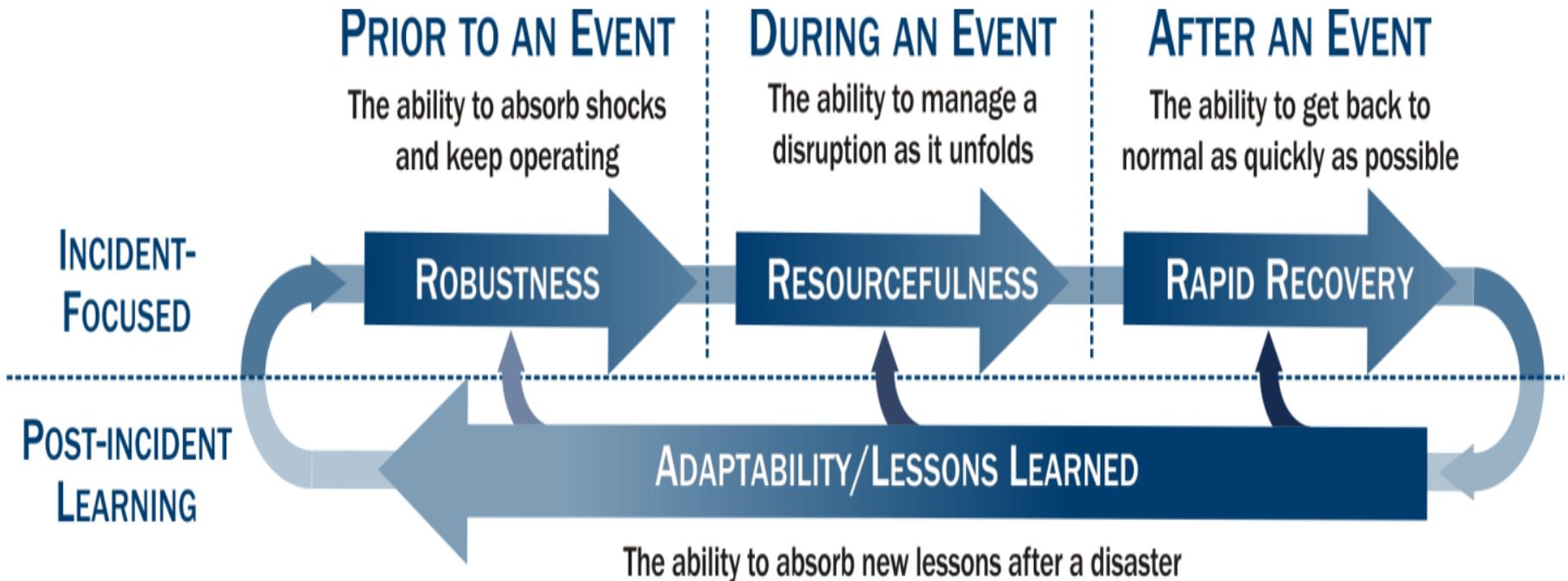
Source: National Academy of Engineering

Microgrids ... New York City After Superstorm Sandy



“Resilience is the ability to reduce the magnitude and/or duration of disruptive events.”





Prevention

- Build security into the design
- Implement traditional controls
- Improve security controls

Collaboration

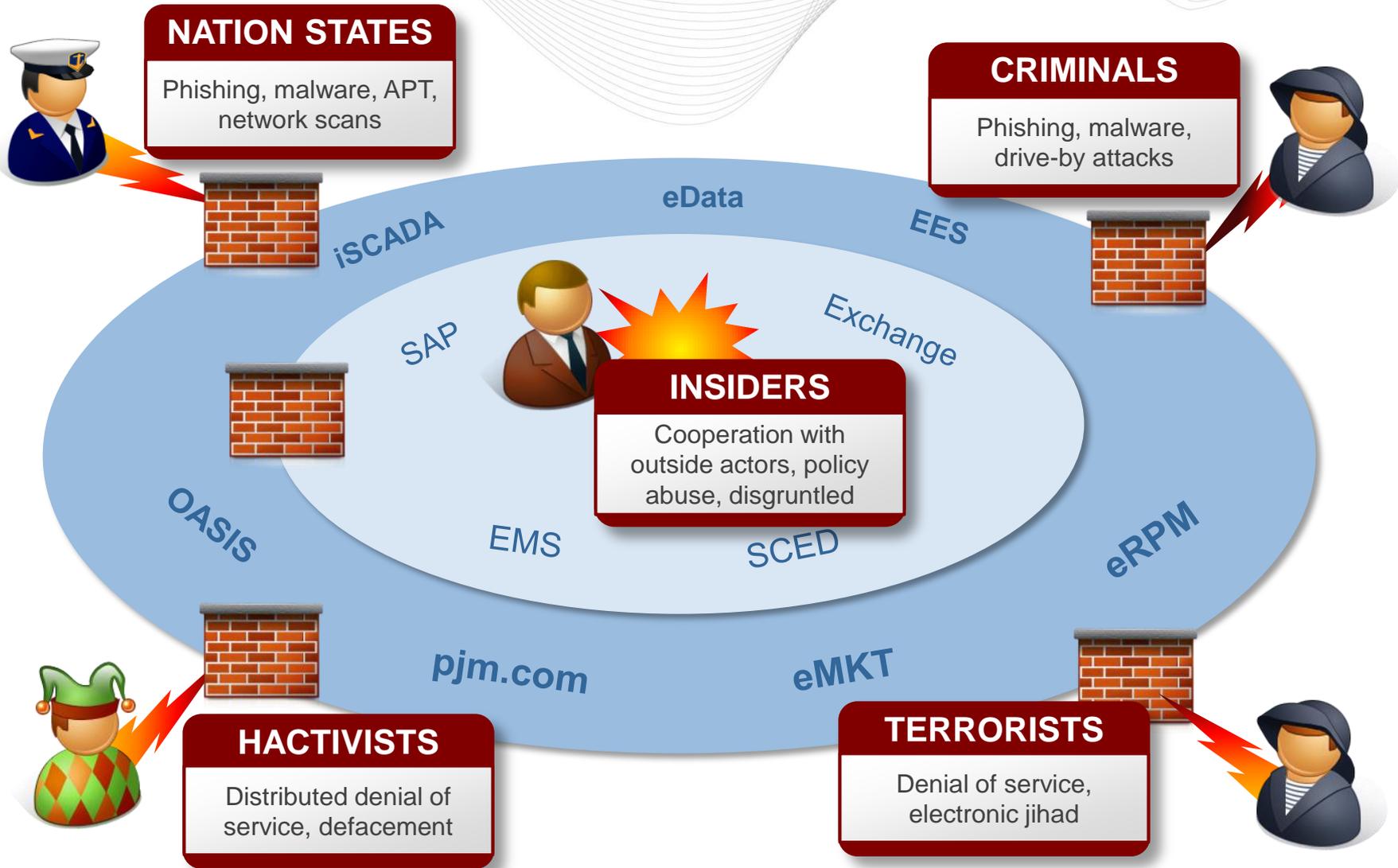
- Coordinate response plans
- Develop and maintain government relationships
- Leverage industry relationships
- Share best practices

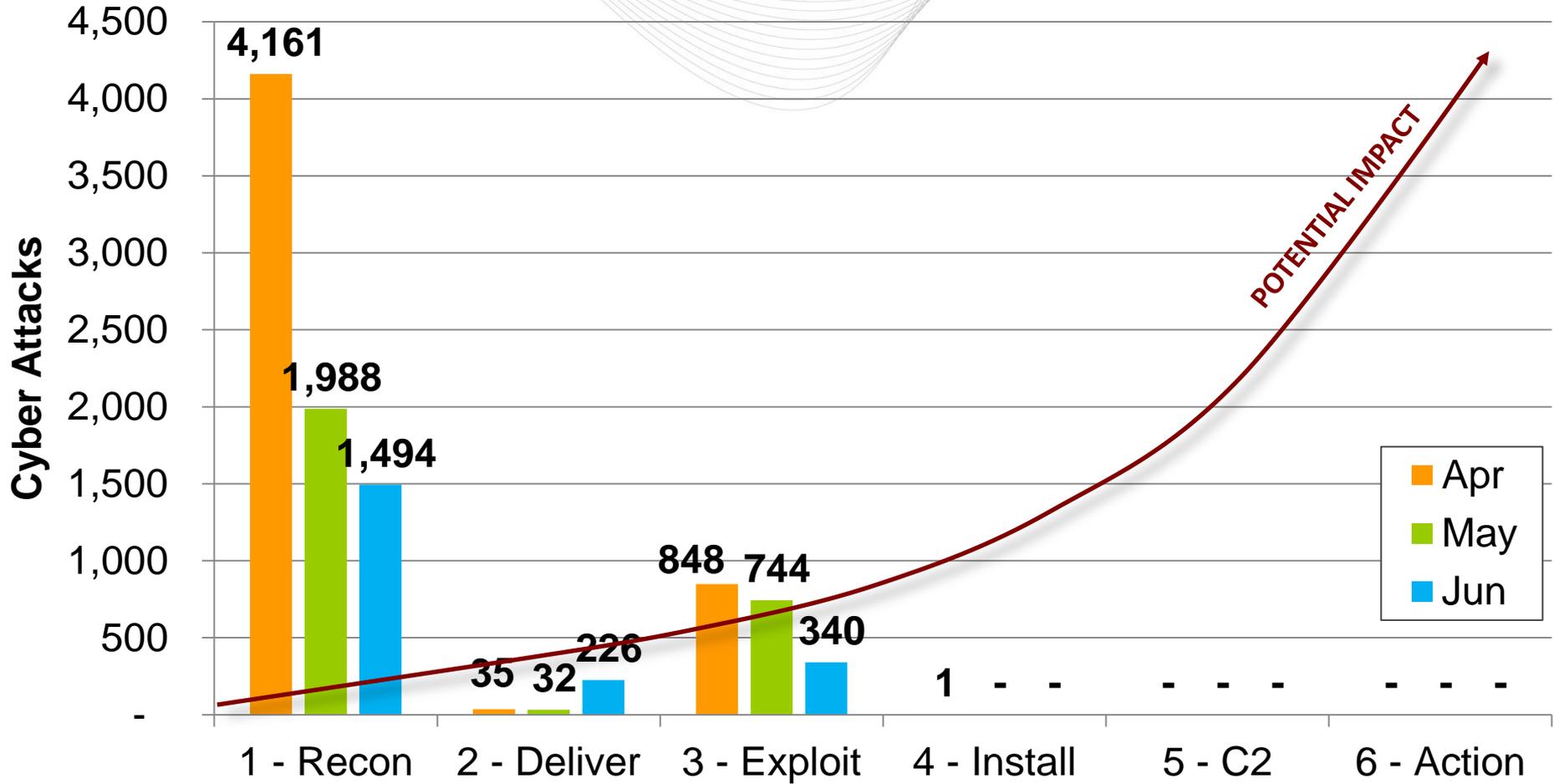


Resilience

- Focus on incident response
- Enhance scenario planning
- Plan and drill restoration scenarios

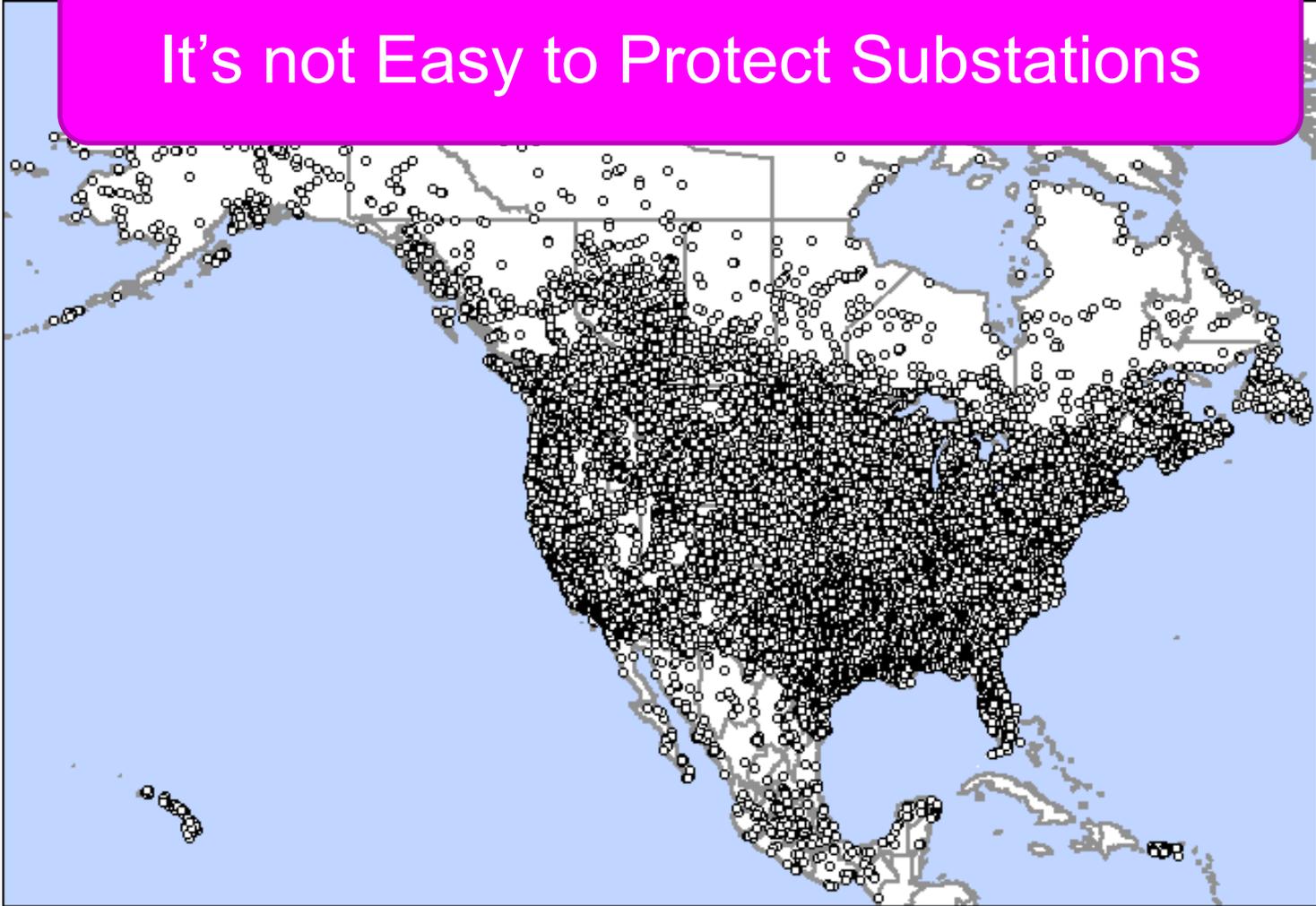




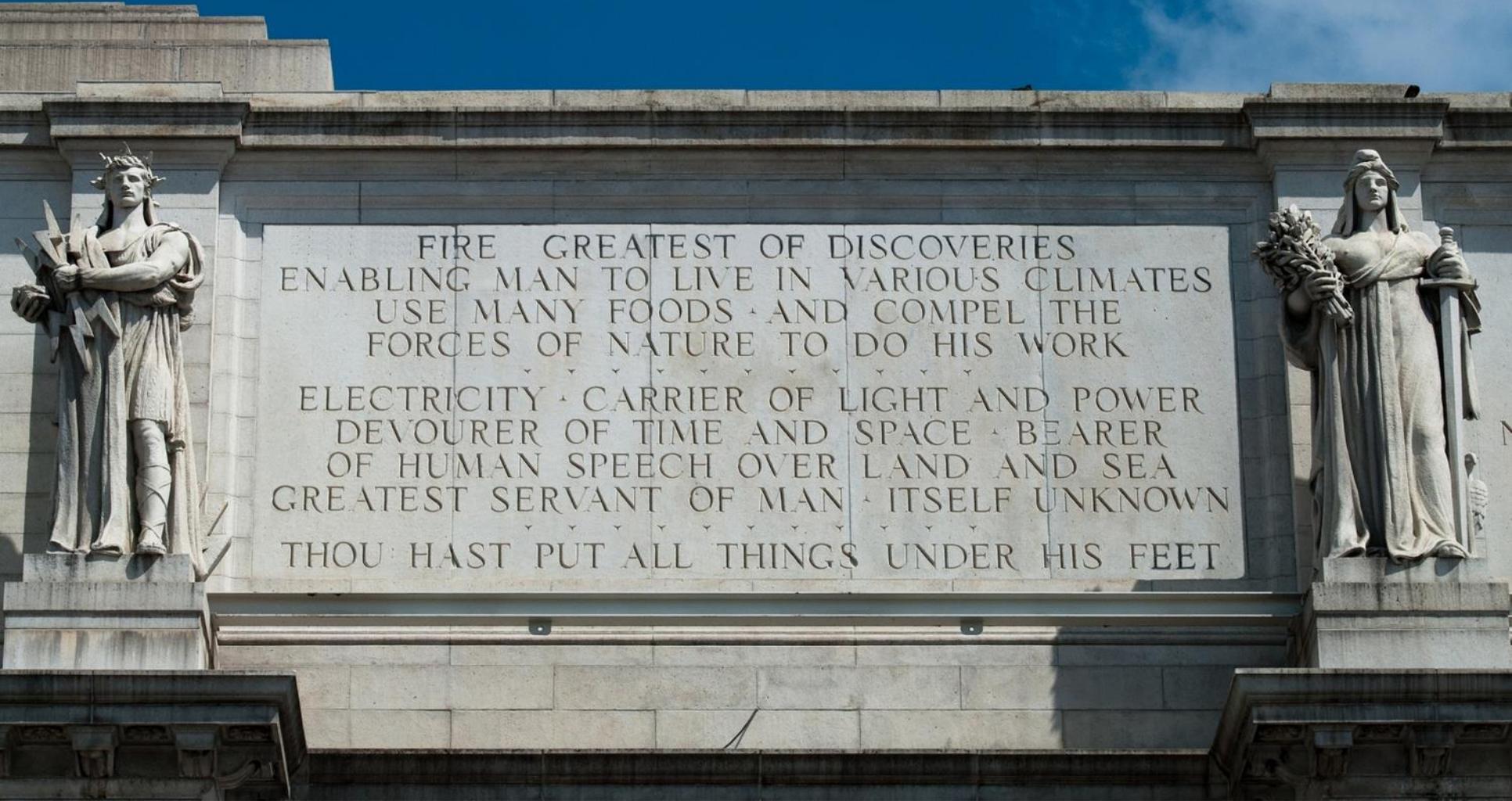


PJM's security posture continued to push attacks to earlier in the attack life cycle.

It's not Easy to Protect Substations







FIRE GREATEST OF DISCOVERIES
ENABLING MAN TO LIVE IN VARIOUS CLIMATES
USE MANY FOODS AND COMPEL THE
FORCES OF NATURE TO DO HIS WORK
ELECTRICITY CARRIER OF LIGHT AND POWER
DEVOURER OF TIME AND SPACE BEARER
OF HUMAN SPEECH OVER LAND AND SEA
GREATEST SERVANT OF MAN ITSELF UNKNOWN
THOU HAST PUT ALL THINGS UNDER HIS FEET